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ABSTRACT

The purpose of this study was to determine if being next-in-line to perform would render strong effects on the student's storage and retrieval of information. The subjects were 45 undergraduate students enrolled in an introductory educational psychology course. Fifteen subjects were arranged in a large circle and were told that they were going to study a sequence of sentences and that a recall test would be administered after each presentation of the sentences. One by one, alternate subjects turned over a sentence card and read the sentence aloud to the group. A free recall task followed each presentation of the sequence. The results indicated that the subjects showed a very high recall performance for sentences read by themselves but tended not to recall sentences within the range of two positions before and one position after their own reading. Also, being next-in-line could have a detrimental effect on student's performance in a regular classroom. (WB)

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The Next-in-Line Effect on Sentence Memory[1]

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Subjects were responsible for presenting a sequence of sentences while seated around a cicle. One by one, alternate students turned over a sentence card and read the sentence aloud to the group. A free recall task followed each presentation of the sequence. The results suggested that being next-in-line could have a detrimental effect on student's performance in a regular classroom.

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The Next-in-Line Effect on Sentence Memory

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It is a common observation that while a student is waiting to ask or answer a question, he is often unaware of anything else happening in the classroom. Personal experiences tell us that on such occasions, there are always a concomitant emotionality involved. Since emotionality could have strong effect on the student's organizational behavior (Easterbrook, 1959), it should be expected that being next in line to perform would render strong effects on the student's storage and retrieval of information. Recent studies carried out by Brenner (1973) showed experimental results which confirmed such an expectation. In his studies, the to-be-remembered materials were lists of unrelated words. It was the purpose of the present study to see if the same results would be obtained when meaningful sentences were used.

Method

Subjects

The Ss were 45 undergraduate students, enrolled in an introductory educational psychology course at the Ohio State University - Mansfield Campus. They voluntarily participated in the experiment.

Procedures

In a regular classroom, 15 Ss were seated in the regular

classroom chairs which were arranged in a large circle. They were told that they were going to study a sequence of sentences and were informed that a recall test would be administered after each presentation of the sentences. At each S's place were arranged a practice card and three numbered sentence cards with a unique sentence typed on the face-down side of every card. The Ss were informed that they were responsible for presenting the sentences, taking turns individually reading a sentence aloud, until a recall signal was given. They were instructed to turn over the card and read the sentence aloud when it was his turn. The first and last three sentences were read aloud by one of the experimenters. Those six sentences served as filler sentences in order to eliminate the primacy and recency effects ordinarily observed in a free recall experiment.

After one practice, the Ss performed three experimental trials. Upon completion of each presentation of the 21 sentences they were asked to free recall the sentences as accurately as they could, In case that they could not remember the sentences word by word, they should write down as many ideas as possible.

The same procedure was replicated twice with additional two 15-Ss groups and with other two sets of sentence-sequences.

Scoring

The procedure for scoring recall protocals was to focus on basic semantic propositions. For example paraphrases were

accepted as correct recalls.

Results

Since the recall patterns for the three replications were very similar among one another the data were averaged across the three groups. The results were summarized at Figure 1.

Insert Figure 1 about here

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which plotted the mean recall scores as a function of the input positions relative to the sentence read by the S. That was, at 0 position on the ordinate was depicted the recall probability of those sentences read by the S himself. at ± position was depicted the recall probability of those sentences immediately preceded or followed by the S's own sentences, and so on.

Figure 1 revealed two interesting aspect: (a) a "peak" effect" at position 0 and a "scallop effect" at position - 2 and position ± 1. That was Ss showed a very high recall performance for sentences read by themselves but tended not to recall sentences within the range of two positions before and one position after their own reading. These results were very similar to those found in Brenner's (1973) experiments, in which the to-be-remembered items were unrelated words. It should also be noted that there seemed to be a tendency for the Ss to recall the 0 position sentences earlier in their recall performance.

Discussion

The results of the present experiment confirmed the expectation for a detrimental effect as the result of being next in line to perform. There are at least three possible explanations for such findings.

1. State dependent hypothesis: Which waiting for reading a sentence, Ss are in an arousal state which may not be the same as the state when he is to recall. This theory asserts that the locus of the next-in-line effect lies at the retireval process per se. The finding of a peak effect for recalling those sentences at 0 position is hard to explain by this retrieval-deficit account.

2. Differential attention hypothesis: as a member of the audience and as a performer before the audience, the S has incompatible demands on his attention. That is, he attends to performance cues at the expense of neglecting the to-be-remember sentences (cf. Brenner 1973). This thoery sounds attractive but it does not take into account the arousal level commonly observed in situation of being next in line.

3. A theory of capacity allocation: This can be reviewed as an extention of the preceding attention hypothesis. The theory proposes that (a) different mental activities will impose different demands on the limited capacity (Kahnman, 1973) and (b) a rise in the demands of activities cause an increase in the level of arousal. When the S is being next in line to

perform, he has to make additional efforts for detecting his performance cue when his turn is up. Such a momentary intentions will affect the attention allocation policy. According to a hypothesis stated by Easterbrook (1959), such a change of allocation occurs whenever arousal is High (see pp. 37-42). The detrimental effect of being next in line results from the re-allocation of the attention policies in a limited information processing system.

Educational Implications

It is a very common practice in a regular classroom that students are expected to participate in the discussions. The present study shows that the requirement to perform can strongly affect a student's use of available information, regardless of that information is unrelated words or sentences. This problem attracts little attention from the educational researchers. May be it is time that more research should be directed to get at the locus of such a detrimental effect of student's activities in order that a better theory of instruction will be possible.

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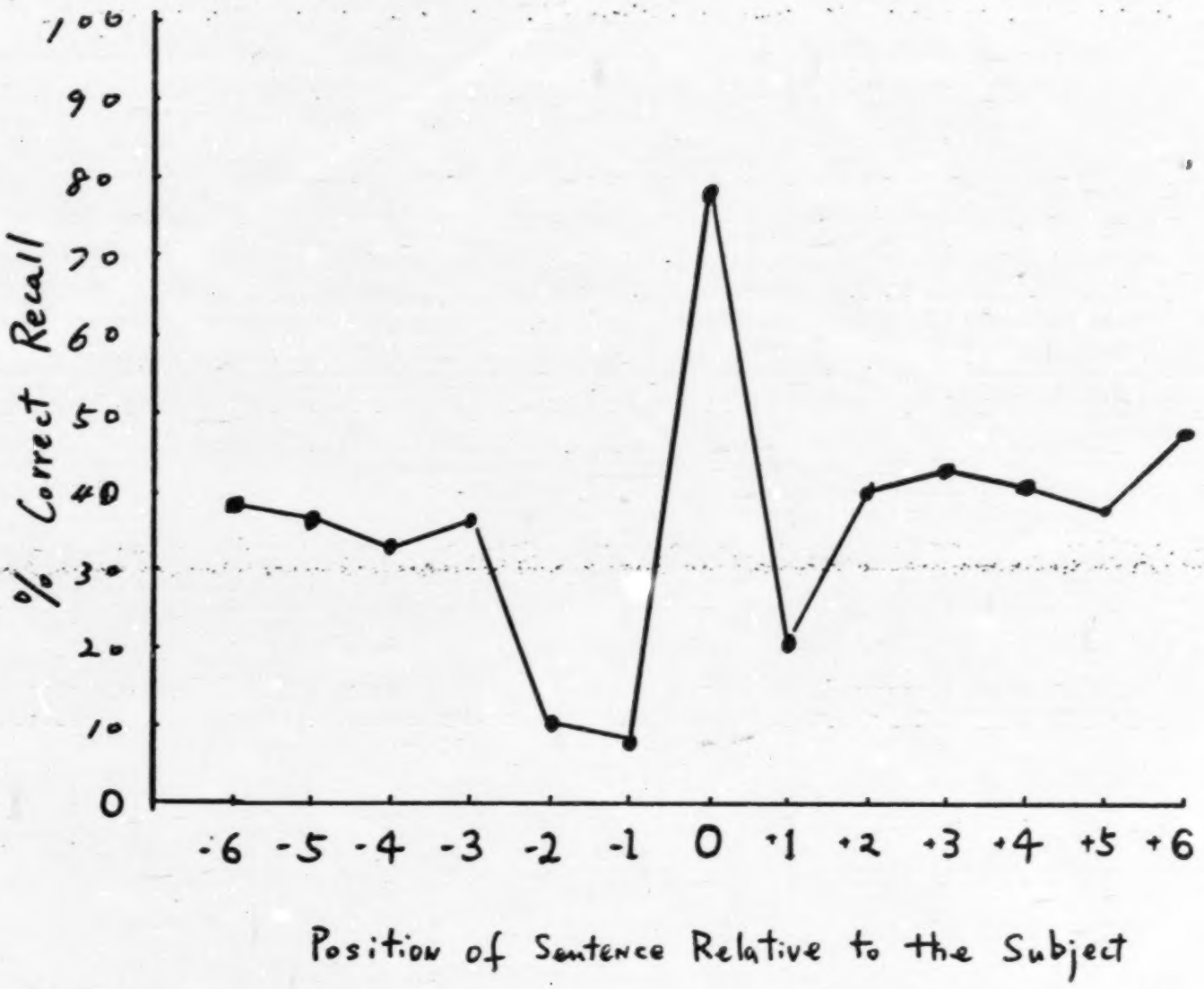
Footnote

[1] The present study was based on a course project conducted by the students enrolled in an introductory educational psychology course (Fall Quarter, 1973) under the supervision of the present author.


% Correct Recall
100
90
80
70
60
50
40
30
20
10
0
-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6
Position of Sentence Relative to the Subject